

## SHORT REPORT

# Simultaneous Rupture of Bilateral Iliac Artery Aneurysm in a Patient with Obstructive Colon Carcinoma

I. Moros,<sup>1\*</sup> N. Saratzis,<sup>2</sup> P. Antonitsis,<sup>1</sup> D. Kaitzis<sup>1</sup> and A. Hatzibaloglou<sup>1</sup>

<sup>1</sup>First Department of Thoracic and Cardiovascular Surgery, AHEPA Hospital, Aristotle University of Thessaloniki, and <sup>2</sup>First Surgical Clinic, Aristotle University of Thessaloniki, G. H. Papageorgiou, Thessaloniki, Greece

*A case of a 79-year-old patient is presented with simultaneous bilateral rupture of iliac artery aneurysms and an obstructive carcinoma of the left colon.*

*Open surgical repair was performed with placement of a bifurcated aortobi-iliac graft followed by tight closure of the retroperitoneum and subsequent left hemicolectomy with exteriorization of both colon ends. The patient was discharged from hospital with no signs of graft infection during a 4-year follow-up period.*

*Rupture of iliac artery aneurysm can occur concomitantly with bowel obstruction. Open synchronous repair of both life-threatening conditions is feasible requiring meticulous surgical technique for avoiding graft contamination.*

**Keywords:** Iliac artery aneurysm; Bilateral; Rupture; Colon carcinoma.

## Introduction

Isolated iliac artery aneurysms (IAA) represent 0.9–2.2% of all intraabdominal aneurysms.<sup>1</sup> The common iliac artery is most commonly involved and bilateral aneurysms are found in 32–48% of IAA.<sup>2</sup> Most of them are asymptomatic. Rupture is associated with a high mortality rate approaching 50% in contrast to elective repair where mortality rate is much lower.

Colorectal cancer and IAA increase frequency with advancing age. The incidence of concomitant abdominal aortic aneurysm (AAA) and colorectal cancer is 0.5–2%.<sup>3</sup> We present a rare case with synchronous bilateral rupture of IAA in a patient with an obstructive colon carcinoma.

## Report

A 79-year-old man presented in the Emergency Department in hypovolemic shock after an acute

onset of pain in the right and left hypogastrium during an attempt to defecate. He had no bowel movements for a period of 17 days. During the last year he observed a reduced frequency in bowel habit. On clinical examination his systolic blood pressure was 90 mmHg and heart rate was 105 beats/min. Palpation of the abdomen revealed tenderness in the hypogastrium with no palpable mass. Abdominal ultrasonography suggested a ruptured infrarenal aorta. A computed tomography (CT) revealed retro- and intraperitoneal hematoma originating from bilateral ruptured IAA with a diameter of 3.8 and 3.6 cm of the right and left common iliac arteries, respectively, (Fig. 1). There was no aneurysmal dilatation of the abdominal aorta. There was significant distention of the transverse and the right colon indicating an obstructive lesion at the level of the left colon (Fig. 2). An emergency laparotomy was performed. A circumferential tumor was found in the descending colon completely obstructing the lumen together with bilateral anterior ruptured IAA. An aortobi-iliac bifurcated graft 18/9 mm in diameter was used to exclude the aneurysm. Both internal iliac arteries involved in the aneurysm were ligated.

\*Corresponding author. Dr Moros Ioannis, 9, Al. Michailidi str., 546 40 Thessaloniki, Greece.  
E-mail address: moros@med.auth.gr



**Fig. 1.** Computed tomography showed bilateral ruptured iliac artery aneurysms producing a retroperitoneal hematoma.

The retroperitoneal space was carefully tightly sutured. Colonic resection followed with great care to avoid operative field contamination. The affected colon segment was resected. Both ends were exteriorized producing an end colostomy and a mucous fistula. At 3rd postoperative day revision of the end colostomy was performed due to reduced viability of the proximal colon. The patient had an uneventful recovery and was discharged on the 18th postoperative day. During the follow-up period he remained asymptomatic with no evidence of graft



**Fig. 2.** Computed tomography at a higher level showed a normal abdominal aorta diameter and a distended transverse colon.

infection and refused to restore bowel continuity. He died of a stroke 4 years later.

## Discussion

The natural history of isolated IAA is largely unknown. Size seems to be the most important determinant for rupture. Current recommendations suggest that IAA that are 4 cm or larger should undergo elective repair because of faster expansion rates and likelihood of rupture.<sup>4</sup> Although bilateral IAA are found in 32–48% of all IAA, the likelihood of simultaneous bilateral rupture is extremely rare.

Aortoiliac surgery combined with procedures for colorectal carcinoma resection pose significant dilemmas to the surgeon. Most surgeons object to simultaneous surgery because of the fear of graft infection. Additionally, a non-vascular operation increases the risk of aneurysm rupture after laparotomy. Most clinicians agree that in the emergency setting the symptomatic or life-threatening lesions should be managed first, either the obstructive or perforated colorectal carcinoma or a large (>6 cm) or ruptured aneurysm.<sup>3</sup>

Synchronous treatment of both lesions in the elective setting has been performed successfully in some centers.<sup>5,6</sup> The reported incidence of graft infection during a six years follow-up period was zero.<sup>5</sup> Meticulous surgical technique with initial aneurysm repair and subsequent tight closure of the retroperitoneum prior to colonic resection are essential for avoiding graft contamination during colectomy.

In the reported patient a unique combination of bilateral ruptured IAA together with an obstructive left colon carcinoma occurred, both requiring emergent operation. Constipation for a period of 1 year that progressed to bowel obstruction was evident in our patient prior to IAA rupture. Fluctuating intraabdominal pressure as well as systematic pressure observed during a vigorous attempt for defecation in this patient is presumed to serve as a predisposing factor for IAA rupture, considering the event of simultaneous bilateral rupture of relatively small (<4 cm) IAA. Open repair was decided as, at this time, there was no availability of performing an emergent endovascular procedure prior to laparotomy.

The operative procedure performed can be considered as high risk for graft contamination due to the increased microbial content that is found in cases of colonic obstruction. Exteriorization of both colon ends was essential for avoiding potential infective or ischemic complications of the proximal or distal

stump. During a 4-year follow-up period no evidence of graft infection was present.

Simultaneous operation for ruptured IAA repair together with colonic resection is feasible in the emergency setting. Meticulous surgical technique is mandatory for avoiding potential infective complications. The advent of endovascular techniques offers an alternative approach for excluding the aneurysm without performing laparotomy with promising results improving with time.<sup>3</sup>

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